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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,552	05/26/2006	Beverley Brown	MERCK-3181	5966
23599 7590 03/13/2009 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201				
EXAMINER				
NWAONICHA, CHUKWUMA O				
ART UNIT		PAPER NUMBER		
1621				
MAIL DATE		DELIVERY MODE		
03/13/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/580,552

**Applicant(s)**

BROWN ET AL.

**Examiner**

CHUKWUMA O. NWAONICHA

**Art Unit**

1621

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2008 to 26 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Current Status***

1. This action is responsive to Applicants' amendment of 29 September 2008 to 26 February 2009.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 1-28 are pending.
4. The 112 rejection is withdrawn following Applicants amendment.
5. The rejection of claims 1-28 under 35 U.S.C. 103 as being unpatentable over Brown et al., {WO 0245184, same as US 7,095,044} in view of Minakata, {WO 2003016599, same as US 7,061,010} for the reasons set forth in the previous Office Action of 01/07/2008 is maintained.

Applicants' argument and amendments filed 13 November 2007 and 29 September 2008 have been fully considered but they are not persuasive because Applicants claimed formulation and device are obvious in view of the prior art references cited. Applicants' argument is based on the fact that the prior art of Brown does neither disclose nor suggest that a combination of a substituted pentacene with an organic binder can yield OFET devices with a significantly higher charge carrier mobility (three to five orders of magnitude), or that the mobility can even be higher than in an OFET device comprising the same semiconductor without binder. Applicants' argument is not convincing because claim 1 does not recite "higher charge carrier mobility and without a binder". Claim 1 recites an organic binder and permittivity at 1000 Hz of 3.3 or less, the

prior art of Brown also recites permittivity at 1000 Hz of 3.3 or less. See column 3, lines 1-67 and the claims.

Applicants further argue that according to Minakata, the purpose of using substituted pentacenes was to increase the crystallinity of the semiconductor film and that Minakata suggests to control the crystal growth of the deposited pentacene for example by applying a temperature gradient, electric field or magnetic field. Applicants' argument is not persuasive because one of ordinary skill in the art would have a reasonable expectation of success in making an organic semiconducting layer formulation and electronic devices by evaluating various polyacene compounds, binders and additives that are commercially available by co-relating the teaching of Brown et al. and Minakata to produce an organic semiconducting layer formulation and electronic devices with superior properties as desired.

Applicants further argue that skilled person could therefore not expect with a reasonable chance of success that mixing substituted pentacenes as disclosed in Minakata with a binder as taught by Brown would give an OFET device with significantly increased charge carrier mobility. Applicants' argument is not persuasive because one of ordinary skill in the art that is determined to produce an organic semiconducting layer formulation and electronic devices for a particular purpose would have a reasonable expectation of success by co-relating the teaching of the prior art references cited and evaluating different substituted pentacenes, binders and additives to produce an organic semiconducting layer formulation and electronic devices of interest.

Additionally, Applicants state that their formulation yield unexpected result. However, Applicants failed to provide a side-by-side comparison of their formulation and the formulation comprising substituted pentacenes, binders and additives as taught by the prior art references cited. The submission of this data would make Applicants' argument convincing. The properties of the organic semiconducting layer formulation achieved by Applicants are inherent properties of organic semiconducting layer formulation comprising substituted pentacenes, binders and additives as taught by the prior art references cited and do not constitute a patentable distinction or modification. Moreover, all the claimed elements were known in the prior art references cited and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

#### ***Claim Objection***

Claim 15 is objected because the value of the variable "n" is not clear. Claim 15 is objected because the claim recites "in an" instead of "an". Corrections are required.

**THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chukwuma O. Nwaonicha/  
Examiner, Art Unit 1621

(for)

/Sikarl A. Witherspoon/  
Primary Examiner, Art Unit 1621

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Daniel Sullivan  
Supervisory Patent Examiner,

Application/Control Number: 10/580,552  
Art Unit: 1621

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